

		Elliptic analyser.			Simple analyser.	
		$\tan \omega$ .	I.	Read-ings.	I'.	Read-ings.
Ist Series.....	Natural face.	0·03345	108° 5·3'	416	—	—
	Same face polished ..	0·02517	107 49·1	384	—	—
IIInd Series. (Elliptic analyser reset).....	Same face polished ..	0·02655	107 49·1	448	266° 5·3'	100
	Same face re-polished ..	0·02723	107 52·6	1280	265 57·3	500
	The first polished face rotated thro' 4° 27'	0·03305	107 39·2	960	—	—
IIIrd Series. (Base of crystal broken up by cleavage).....	Natural face.	0·03368	108 31·4	384	—	—
Effect of time ..	Polished face Dec. 8 ....	—	—	—	111 15·7	40
	Polished face Jan. 20 ...	—	—	—	111 16·7	60
	.....	—	—	—	111 16·4	60

V. "Contributions to the Chemistry of Chlorophyll. No. II."  
By EDWARD SCHUNCK, F.R.S. Received November 25,  
1886.

(Abstract.)

In this paper the author continues his account of the properties of phyllocyanin, one of the products of the action of acids on chlorophyll. He shows that by passing a current of  $\text{CO}_2$  through an alcoholic solution of phyllocyanin holding oxide of zinc in suspension, a compound is obtained containing zinc and carbonic acid, a phyllocyanin zinc carbonate resembling phyllocyanin zinc acetate, but that no analogous compounds containing iron or copper are formed in this way. Attention is directed to the points of resemblance between the double compounds of phyllocyanin containing zinc and chlorophyll itself, particularly as regards their susceptibility to change when exposed to the action of air and light, and it is shown that while

these compounds when in solution lose their colour almost as rapidly as chlorophyll itself, those containing copper are remarkably stable, since their solutions may be exposed for many weeks to light and air without undergoing any apparent change.

The products derived from phylloeyanin by reduction are next described. The action of tin and hydrochloric acid on phylloeyanin passes through two distinct stages. During the first stage a colouring matter is formed which is remarkable from its solutions showing no less than eight absorption bands. The product formed during the next stage of the process is interesting from its yielding solutions of a bright red colour without any tinge of green, and from its resembling in some respects the colouring matters of red flowers.

VI. "On the Changes in the Proteids in the Seed which accompany Germination." By J. R. GREEN, B.Sc., B.A., Demonstrator of Physiology in the University of Cambridge. Communicated by Professor M. FOSTER, Sec. R.S. Received November 25.

(Abstract.)

The processes of the germination of the seed have been in recent years investigated by v. Gorup-Besanez, who in a series of papers written in 1874 and 1875,\* has stated that the changes in the reserve proteid materials are probably due to the action of a proteolytic ferment, as from the seeds of the vetch, hemp, flax, and barley plants he was able to extract a body which converted fibrin into peptone. Later, in 1878, Krauch† disputed v. Gorup-Besanez's conclusions, and claimed that his results were erroneous on account of imperfect methods of working. As v. Gorup-Besanez based his statement partly on the detection of peptone by the biuret test after the digestion had gone on for some time, and partly on a diminution of the fibrin, Krauch explained his results by saying that the digestive extract itself gave a biuret reaction, and that the diminution of the fibrin was only due to a shrinkage of its flocks.

During the past year I have been carrying out a series of experiments bearing upon this disputed point, and have succeeded in demonstrating in the seeds of the lupin (*Lupinus hirsutus*) the existence of such a ferment as v. Gorup-Besanez stated to be present, and in ascertaining some particulars as to its condition in the resting seed, the nature and conditions of its action, and the changes which

\* 'Deutsch. Chem. Gesell. Ber.,' 1874, p. 1478. *Ibid.*, 1875.

† "Beiträge zur Kenntniss der ungeformten Fermente in den Pflanzen," 'Land-wirthsch. Versuchs-Stat.,' vol. 27, 1878, p. 383.